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Article (Published Version)

Holligan, Bonnie (2020) Commodity or propriety? Unauthorised transfer of intangible entitlements in the EU emissions trading system. *Modern Law Review*, 83 (5). pp. 979-1007. ISSN 0026-7961

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# Commodity or Propriety? Unauthorised Transfer of Intangible Entitlements in the EU Emissions Trading System

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This article argues that the law governing transfer of allowances within the EU Emissions Trading System (EU ETS) should place greater weight upon transactional (and environmental) integrity, even over market liquidity. More broadly, it reflects on the role played by registries in sharing or concealing information about the material world. Although property rules enable market activity through the creation of an abstract carbon commodity, they must also link past to future entitlements in a just way. In emissions trading markets, justice in private transactions is intimately connected to public questions of environmental justice. The relevant EU Regulation prioritises facility of transfer over protection of existing holders, insulating registered entitlements from prior proprietary claims. This approach ignores the important connections between history, integrity and responsibility in both public and private spheres. A preferable response would be to distinguish between transactional and register error, protecting against register mistakes, but not transactional defects.

## INTRODUCTION

Emissions trading schemes inhabit an uneasy position between public and private law. Approached as markets, their foundations are the private law institutions of contract and property, but their role in allocating environmental responsibility raises public concerns around environmental integrity, administrative legitimacy and social and environmental justice. The process by which carbon and other pollutants are commodified<sup>1</sup> presents many questions for property scholars; this article considers allowances created under the EU Emissions Trading System (EU ETS)<sup>2</sup> as, at least in the understanding of English law, a novel form of intangible property. Drawing on perspectives from property theory and doctrine, as well as critical geographical scholarship, it claims that the public dimensions of emissions trading necessitate a conceptual shift

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- 1 The concept of 'commodification' is used here in the Marxian sense detailed by N. Castree, 'Commodifying What Nature?' (2003) 27 *Progress in Human Geography* 273.
- 2 The EU ETS was created under Directive 2003/87/EC establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC OJ L 275/32 (Emissions Trading Directive).

in doctrinal norms and values. In particular, the rules governing transfer of allowances must foster not only justice between individual market participants, but also political and ecological accountability.

The article is part of a growing body of research analysing the role of property in emissions trading markets.<sup>3</sup> It explores some of the normative contradictions that transfer rules must manage, in particular the perceived tension between market liquidity and environmental and transactional integrity. The current legal construction of allowances as fungible property that must circulate without restriction is a fragile edifice that often operates to obscure conflict rather than resolve it. Questions of territory and sovereignty constantly threaten the legal homogeneity of allowances, for example in the negotiations around the departure of the United Kingdom from the European Union.<sup>4</sup> Moreover, intangible property rights such as emissions allowances cannot be understood separately from the technologies that create and record them; the design of electronic registration systems is closely connected to legal paradigms of transfer.<sup>5</sup> As processes of market exchange compress space and time, the article points to the importance of maintaining property rules that recognise, rather than suppress, the connection with the human and material.

The EU ETS has its origins in a more general policy shift towards the use of market mechanisms to solve environmental problems such as climate change.<sup>6</sup> The construction of new forms of property right plays a critical role in the establishment of successful trading schemes.<sup>7</sup> Notwithstanding the legislative silence regarding the legal nature of emissions allowances in the EU ETS (EUAs), it appears meaningful, in the English context at least, to talk of entitlement to EUAs as being proprietary in nature. Discussion in the article centres on reforms made in 2011 to the registration of allowances that prioritise facility of transfer over protection of existing holders. These reforms, it is argued, protect the homogeneity of allowances at the expense of values

3 See in particular K.F.K. Low and J. Lin, 'Carbon Credits as EU Like It: Property, Immunity, TragiCO2medy?' (2015) 27 *Journal of Environmental Law* 377; S. Manea, *The Instrumentalization of Property: Legal Interests in the EU Emissions Trading System* (The Hague: Wolters Kluwer, 2014) and C. Godt (ed), *Regulatory Property Rights: The Transforming Notion of Property in Transnational Business Regulation* (Leiden: Brill, 2016) esp chs 1 and 2 by C. Godt and M. Colangelo.

4 Preparations have included plans to distinguish allowances originating in the United Kingdom from other allowances if not surrendered before the exit date: Commission Regulation (EU) 2018/208 of 12 February 2018 amending Regulation (EU) No 389/2013 establishing a Union Registry and The Greenhouse Gas Emissions Trading Scheme (Amendment) Regulations 2017, SI 2017/1207. From April 2019, the UK has been unable to issue allowances: Commission Decision of 17 December 2018 on instructing the central administrator to temporarily suspend the acceptance by the European Union Transaction Log of relevant processes for the United Kingdom relating to free allocation, auctioning and the exchange of international credits (C(2018) 8707).

5 The risk of 'governance by algorithm' displacing property norms has been highlighted, in a different context, by P. Paech, 'Securities, intermediation and the blockchain: an inevitable choice between liquidity and legal certainty?' (2016) 21 *Uniform Law Review* 612.

6 For analysis of these shifts in regulatory approaches and actors, see N. Gunningham, 'Environment Law, Regulation and Governance: Shifting Architectures' (2009) 21 *Journal of Environmental Law* 179; C.T. Reid and W. Nsoh, *The Privatisation of Biodiversity? New Approaches to Nature Conservation Law* (Cheltenham: Edward Elgar, 2016) ch 1.

7 See for example Reid and Nsoh, *ibid*, para 2.9; Manea, n 3 above, ch 6.

connected with historically-derived integrity and responsibility in both public and private spheres.

The relevant EU Regulation (the Registry Regulation),<sup>8</sup> was adopted to shore up the emissions trading market, confidence in which had been affected by serious instances of fraud and electronic theft<sup>9</sup> of allowances.<sup>10</sup> Although allowances are explicitly stated by the Regulation to be fungible,<sup>11</sup> legal equivalence can only mask imperfectly the material and political dimensions that continue to be associated with the regulation of carbon pollution. The use of market mechanisms to allocate environmental responsibility entails that private law questions of entitlement to allowances are inextricably linked to public questions of liability for carbon emissions; integrity in market transactions is, on some level, connected to environmental effectiveness.

The doctrinal implication of this perspective is that protection of good faith acquirers requires different justifications to those accepted in other contexts. Acknowledging the interpenetration of public and private responsibility necessitates a rebalancing away from abstraction and towards transparency. The article contends that suppression of historical, property-based claims to allowances should not be used to mask structural deficits in trading governance. Particularly given the risks associated with an entirely electronic system of transfer, it is argued that conferring an immediately indefeasible entitlement to an allowance on registration is not justified, although allowing entitlements to become indefeasible on some later event such as valid transfer to a third party (deferred indefeasibility) may be.<sup>12</sup>

It is concluded that, despite the ultimately limited ability of transfer rules to address many of the contradictions inherent in emissions trading, their function is more complex than is suggested by the Registry Regulation. Although property rights enable market activity, they achieve this by linking past to future entitlements in a just way. Abstraction and fungibility of allowances can therefore never be total or complete.

8 Initial changes were made in Regulation (EU) No 1193/2011, but this was later repealed. See now Commission Regulation 389/2013/EU of 2 May 2013 establishing a Union Registry pursuant to Directive 2003/87/EC of the European Parliament and of the Council, Decisions No 280/2004/EC and No 406/2009/EC of the European Parliament and of the Council and repealing Commission Regulations (EU) No 920/2010 and No 1193/2011 [2013] OJ L122/1 (Registry Regulation).

9 In English law at least, it is meaningful to refer to 'theft' of intangibles. For the purposes of the Theft Act 1968, 'property' extends to 'things in action and other intangible property' (Theft Act 1968, s 4(1)).

10 See K. Nield and R. Pereira, 'Financial crimes in the European carbon markets' in S.E. Weishaar and E. Woerdman, *Research Handbook on Emissions Trading* (Cheltenham: Edward Elgar, 2016) 195, 206–208. See further sources at nn 39–41 below.

11 Registry Regulation, Art 40(1).

12 This term is more frequently used in the context of title-based land registration systems on the 'Torrens' model, such as that in Australia; see P. O'Connor, 'Deferred and Immediate Indefeasibility: Bijural Ambiguity' (2009) 13 *Edinburgh Law Review* 194.

## EU EMISSIONS ALLOWANCES AS INTANGIBLE PROPERTY

### Context: market allocation of pollution opportunities

Launched in 2005,<sup>13</sup> the EU ETS aims to reduce anthropogenic greenhouse gas emissions through the creation of an ‘efficient European market in greenhouse gas emission allowances’,<sup>14</sup> each allowance representing one tonne of carbon dioxide equivalent.<sup>15</sup> It is argued in this section that this has given rise to a form of entitlement that can meaningfully be understood as ‘property’. Emissions reductions are achieved through the imposition of a cap on the total tonnes of CO<sub>2</sub> equivalent (tCO<sub>2</sub>-e) that can be emitted by regulated entities during a compliance period.<sup>16</sup> Operators of relevant ‘installations’,<sup>17</sup> broadly those which involve high-energy operations such as power plants with a thermal input of over 20MW, metal processing facilities or oil refineries, have their emissions monitored and are required to surrender a corresponding number of allowances each year or to pay a financial penalty.<sup>18</sup> The cap is now set at EU level, with each member state determining the allocation of allowances within its jurisdiction.<sup>19</sup> In 2012 the scheme was extended to cover aviation emissions within the EEA, with plans for further expansion.<sup>20</sup>

The legal structures governing transfer of allowances are embedded within a burgeoning theoretical and policy discourse around emissions trading markets and their role in environmental governance. A fundamental premise of such trading schemes is that trade in pollution authorisations or exemptions<sup>21</sup> will allow individual polluters to select the optimum balance between reducing emissions and purchasing permits at market value. This is portrayed as a more efficient way of allocating pollution opportunities than regulation by a central or state body.<sup>22</sup> Initially, EU ETS allowances are distributed through either free

13 See Emissions Trading Directive. On the history of the EU ETS and emissions trading, see D. Freestone and C. Streck (eds), *Legal Aspects of Carbon Trading: Kyoto, Copenhagen and Beyond* (Oxford: OUP, 2009) esp ch 16 by M. Pohlmann, ‘The EU Emissions Trading Scheme’.

14 See Emissions Trading Directive.

15 Emissions Trading Directive, Art 3(a).

16 For 2019, the cap for non-aviation emissions was 1,854,716,381 tonnes of CO<sub>2</sub>e. See Commission Decision 2010/384/EU of 9 July 2010 on the Community-wide quantity of allowances to be issued under the EU Emission Trading Scheme for 2013 (notified under document C(2010) 4658 OJ L 175/36) and Emissions Trading Directive, Art 9.

17 For the definition of ‘installation’, see Emissions Trading Directive, Art 3h and Annex 1.

18 See Emissions Trading Directive, Arts 6 and 16.

19 Emissions Trading Directive, Art 9.

20 See Emissions Trading Directive, Ch II and Commission policies at [https://ec.europa.eu/clima/policies/transport/aviation\\_en](https://ec.europa.eu/clima/policies/transport/aviation_en).

21 On a Hohfeldian analysis, a distinction can be drawn between a ‘right to pollute’, for example a proprietary entitlement to emit a certain quantity of pollution, and an exemption from a penalty. See *Armstrong DLW GmbH v Winnington Networks Ltd* [2012] EWHC 10 (Ch) at [48] (*Armstrong*).

22 A classic summary of this argument is given by J.H. Dale, *Property and Prices: An Essay in Policy-Making and Economics* (Toronto: University of Toronto Press, 1968) ch 6.

allocation or auctioning.<sup>23</sup> In order to meet its obligations under the scheme, an operator may subsequently acquire or transfer allowances on the open market.<sup>24</sup>

To engage in trading, one is not required to be the operator of an installation; voluntary activity by traders and brokers expands and deepens market participation.<sup>25</sup> Many transactions involve trading in derivatives (futures, forwards, options, swaps) rather than direct buying or selling of allowances.<sup>26</sup> The development of this secondary market is seen as crucial to the effective functioning of carbon markets, as, at least according to orthodox economic theory, the greater the volume and frequency of transactions, the more efficient the market will be at setting the appropriate pollution price.<sup>27</sup> The majority of secondary trading now takes place via exchanges.<sup>28</sup> Under the second Markets in Financial Instruments Directive (MiFID2) all trades in emissions allowances are now regulated in the same way as those involving financial instruments.<sup>29</sup> This provides for various types of scrutiny over the activities of traders, potentially reducing the risk of unauthorised transfer, but does not, in itself, affect any property rules that might apply to allowances.<sup>30</sup>

A fundamental distinction can be drawn between EUAs, which are predicated on the existence of EU limits on emissions<sup>31</sup> and are distributed initially through state auctioning or allocation, and offset-based emissions credits, which

23 Commission policy is to move towards auctioning of all allowances, but under transitional provisions in place until 2020 around 43 per cent of allowances will continue to be allocated for free under harmonised rules set out in the Emissions Trading Directive, Arts 10–10c. See European Commission, *Report on the functioning of the European carbon market* COM(2019) 557 final, 13–25.

24 See Emissions Trading Directive, Art 12.

25 Emissions Trading Directive, Art 19(2). See Registry Regulation, Art 18 for the procedure regarding the opening of a ‘person holding and trading account’.

26 For discussion of secondary trading activity and indicative statistics, see Europe Economics report for European Commission, *Interplay between EU ETS Registry and Post Trade Infrastructure* (2015) 113–130.

27 On the complementary relationship between primary and secondary markets, see A. Hedges, ‘The Secondary Market for Emissions Trading: Balancing Market Design and Market Based Transaction Norms’ in Freestone and Streck (eds), n 13 above, 310, 332–333. On whether ‘thin’ trading is a sign of market inefficiency, see B. Hintermann et al, ‘Price and Market Behavior in Phase II of the EU ETS: A Review of the Literature’ (2016) 10 *Review of Environmental Economics and Policy* 108, 118–119.

28 On the move away from more specialised contracting via brokers, see Europe Economics report for European Commission, n 26 above, 20.

29 See Annex 1 to Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments and amending Directive 2002/92/EC and Directive 2011/61/EU (recast) OJ L 173/349 (MiFID 2 Directive). Some activities are, or may be, exempted from the scope of the directive, see Arts 2 and 3.

30 No provision is made in the MiFID 2 directive as to ownership of traded assets. For information about Commission policy in this area, see [https://ec.europa.eu/info/business-economy-euro/banking-and-finance/financial-markets/securities-markets/investment-services-and-regulated-markets-markets-financial-instruments-directive-mifid\\_en](https://ec.europa.eu/info/business-economy-euro/banking-and-finance/financial-markets/securities-markets/investment-services-and-regulated-markets-markets-financial-instruments-directive-mifid_en). See also K. Gorzelak, ‘The legal nature of emission allowances following the creation of a Union Registry and adoption of MiFID II – are they transferable securities now?’ (2014) 9 *Capital Markets Law Journal* 373, 385–386.

31 See Emissions Trading Directive, Arts 6 and 16.

are generated through carbon reduction activities.<sup>32</sup> The EU ETS allows participants to use credits from two UN programmes initiated as part of the Kyoto Protocol to the United Nations Framework Convention on Climate Change, the Clean Development Mechanism (CDM) and Joint Implementation (JI), in fulfilment of their compliance obligations.<sup>33</sup> The credits created through these schemes are known as Certified Emissions Reductions (CERs) and Emissions Reduction Units (ERUs) respectively, and they may be registered in the Union Registry.<sup>34</sup> Subject to some restrictions on eligibility and quantity, CERs and ERUs may be exchanged for EUAs.<sup>35</sup> The inclusion of these offsets in the EU ETS has been one of its most controversial aspects.<sup>36</sup> Until 2020, 50 per cent of the emissions reductions generated by the EU ETS are permitted to come from the surrender of EUAs converted from offset-based credits, which implicitly reduces demand for allowances distributed by member states.<sup>37</sup>

Despite some evidence of positive impacts on carbon emissions and technological innovation, the market in EUAs has functioned imperfectly.<sup>38</sup> The EU ETS has been linked to extensive and various criminal activities, ranging from VAT fraud to theft of emissions allowances.<sup>39</sup> There have also been problems with the additionality of projects, and difficulties associated with the linking of the EU ETS to international emissions trading schemes, such as ‘recycling’ of allowances already surrendered in other schemes.<sup>40</sup> As a result, the Commission

32 As well as being necessary for conceptual clarity, this distinction may also have important commercial consequences: see *Ineos Manufacturing Scotland Ltd v Grangemouth CHP Ltd* [2011] EWHC 163 (Comm) (*Ineos*).

33 For comparison of the legal nature of Kyoto credits and EUAs, see M. Wemaere, C. Streck and T. Chagas, ‘Legal Ownership and Nature of Kyoto Units and EU Allowances’ in Freestone and Streck, n 13 above, 35.

34 See Annex 1 to the Registry Regulation for a list of which account types can hold which types of credit.

35 See Registry Regulation, Art 60.

36 See sources at nn 40–42 below and Sandbag Climate Campaign, *Help or Hindrance? Offsetting in the EU ETS* (2012).

37 For example, the volume of CERs that can be used is equivalent to 50 per cent of the annual reduction in the EU-level cap. See Emissions Trading Directive, Art 11a.

38 For a review of the literature on impacts, see R. Martin, M. Muûls and U.J. Wagner, ‘The Impact of the European Union Emissions Trading Scheme on Regulated Firms: What Is the Evidence after Ten Years?’ (2016) 10 *Review of Environmental Economics and Policy* 129. For an overview of criticism, see F. Branger et al, ‘The European Union Emissions Trading Scheme: should we throw the flagship out with the bathwater?’ (2015) 6 *WIREs Climate Change* 9.

39 For a typology of the various types of fraudulent behaviours that have affected carbon markets, see P. Martin and R. Walters, ‘Fraud Risk and the Visibility of Carbon’ (2013) 2 *International Journal for Crime, Justice and Social Democracy* 27, 30. See also M-C. Frunza, *Fraud and Carbon Markets: The Carbon Connection* (Abingdon: Routledge, 2013) and Interpol, *Guide to Carbon Trading Crime* (2013).

40 *Deutsche Bank AG v Total Global Steel Ltd* [2012] EWHC 1201 (Comm) (*Deutsche Bank*) is one example of litigation arising from the sale of previously surrendered credits. The events giving rise to a 2010 scandal over the use of such credits are described at paras 26–36 of the judgment. See also Carbon Market Institute, *Integrity and Oversight of the European Union Emissions Trading System* (2012) ch 6.



has made various legislative and policy changes to address these risks,<sup>41</sup> and the use of linking credits has been restricted (but not ended entirely).<sup>42</sup>

### Proprietary status of allowances

Determining the legal status of intangible permissions such as emissions allowances raises deep questions regarding the scope of 'property', to which it is difficult to provide a uniform answer across jurisdictions. Although English law appears willing to accept allowances as, in its terms, intangible property, the relevant EU legislation is silent on the matter. According to the Emissions Trading Directive:

'allowance' means an allowance to emit one tonne of carbon dioxide equivalent during a specified period, which shall be valid only for the purposes of meeting the requirements of this Directive and shall be transferable in accordance with the provisions of this Directive.<sup>43</sup>

The Union Registry provides an electronic record of the existence of and (in the words of the English language version of the Registry Regulation) 'title over' allowances, which have no material form.<sup>44</sup> More precise definition of the legal status of allowances is left to member states.<sup>45</sup>

From the perspective of English law, the proprietary status of allowances does not appear especially controversial. The High Court has, in *Armstrong DLW GmbH v Winnington Networks Ltd*<sup>46</sup> (*Armstrong*), recognised entitlement to allowances as a form of intangible property. As an EUA is not claimed or enforced through legal action, it was classified as a form of 'other intangible property' rather than a chose in action.<sup>47</sup> Two (possibly complementary) lines of reasoning were put forward by Stephen Morris QC<sup>48</sup> to justify this conclusion. Reference was first made to the, perhaps somewhat circular, prin-

41 See European Court of Auditors, *The integrity and implementation of the EU ETS* (2015) 19–20.

42 See Commission Regulation (EU) No 1123/2013 of 8 November 2013 on determining international credit entitlements pursuant to Directive 2003/87/EC of the European Parliament and of the Council, OJ L 299/32 and Emissions Trading Directive, Art 11b.

43 Emissions Trading Directive, Art 3(a).

44 See Registry Regulation, Art 40(2). The terminology used in the Registry Regulation is not necessarily consistent between jurisdictions: for example, the German version of Art 40(2) refers to *Besitzrecht*, which can be literally translated as 'right to possess'. This is presumably to avoid the, potentially controversial, suggestion that an incorporeal thing such as an EUA could be an object of *eigntum* (ownership).

45 On the history of this decision, see Low and Lin, n 3 above, 381–382. For an overview of the legal treatment of allowances in various member states, see member state responses submitted to the Commission under Directive 2003/87/EC, Art 21 at <http://www.eea.europa.eu/data-and-maps/data/application-of-the-emissions-trading>.

46 n 21 above. For discussion of the case, see Low and Lin, n 3 above, and D. Sheehan, 'Bona Fide Purchase, Knowing Receipt and Proprietary Claims to Land and Carbon Credits' (2013) 24 *King's Law Journal* 424.

47 *Armstrong* n 21 above at [61].

48 Sitting as a deputy High Court judge.



ciples put forward by Lord Wilberforce in *National Provincial Bank v Ainsworth*<sup>49</sup> (*Ainsworth*). According to this widely-cited summation, the hallmarks of a proprietary right are that it is 'definable, identifiable by third parties, capable in its nature of assumption by third parties, and [has] some degree of permanence or stability'.<sup>50</sup>

On this basis, although it 'represents at most a permission (or liberty in the Hohfeldian sense) or an exemption from a prohibition or fine',<sup>51</sup> an EUA was argued to be definable as 'the sum total of rights and entitlements conferred on the holder pursuant to the ETS'.<sup>52</sup> EUAs are transferable under the EU ETS rules (indeed, their transferability is crucial to the establishment of a functioning market). Finally, each allowance has a unique code.<sup>53</sup> This allows for identification and contributes to the permanence and stability of the allowance.<sup>54</sup> The serial number is argued below to connote a distinct history and identity; in this respect, an allowance resembles corporeal money such as a banknote more closely than an entry in a bank account ledger (whether electronic or otherwise).

Given the relative openness of English law to recognising property rights in a variety of incorporeal things,<sup>55</sup> it is reasonable to suppose that similar conclusions will be reached in future English litigation. The characteristic flexibility of English law is illustrated in the close attention paid to *In re Celtic Extraction Ltd*<sup>56</sup> (a case involving waste management licenses). According to Stephen Morris QC's interpretation of this judgment, a statutory entitlement that is transferable and has value is certainly 'property'.<sup>57</sup> This represents a comparatively expansive understanding of 'property' as being a quality that is closely connected to financial value. Insofar as it affords legal certainty and rewards market participation, such an approach has attractions for both regulators and participants in emissions trading, particularly in a context where allowances are distributed by auction.<sup>58</sup> The construction of new types of property right may be perceived here as a bulwark against state power.<sup>59</sup> The recognition that allowances represent significant resources is consistent with their characterisation by the Court of Justice of the European Union (CJEU) in *Holcim (Romania) SA v Commission (Holcim)* as 'instruments that can belong to the assets of . . . natural and legal persons'.<sup>60</sup> Although other private law institutions such as

49 [1965] AC 1175. See *Armstrong* n 21 above at [50]. For a critique of the approach in *Ainsworth*, see K. Gray, 'Property in Thin Air' (1991) 50 CLJ 252, 292-293.

50 *Ainsworth* *ibid*, 1248.

51 *Armstrong* n 21 above at [48].

52 *ibid* at [50].

53 Registry Regulation, Art 41(3).

54 See *Armstrong* n 21 above at [50].

55 For example, M. Bridge et al (eds), *The Law of Personal Property* (London: Sweet & Maxwell, 2nd ed, 2017) covers a variety of intangible things including intellectual property rights such as trademarks.

56 [2001] Ch 475.

57 *Armstrong* n 21 above at [57].

58 A point noted by C. Streck and M. von Unger, 'Creating, Regulating and Allocating Rights to Offset and Pollute: Carbon Rights in Practice' (2016) 3 *Carbon and Climate Law Review* 178, 185.

59 See for example C.A. Reich, 'The New Property' (1964) 73 *Yale Law Journal* 733.

60 EU:C:2016:207 at [64].

contract may be able to resolve certain questions,<sup>61</sup> property has a valuable ability to match entitlements to particular persons.<sup>62</sup>

*Armstrong*, if followed, goes some way towards clarifying a number of the doctrinal questions raised by the trade in EU allowances in English law. Some uncertainty remains, however, for property lawyers regarding the implications of the transfer rules set out in the Registry Regulation, discussed below. There is also the question of the variance in theoretical and doctrinal perspectives on the nature of allowances across jurisdictions.<sup>63</sup> As a result of concern over these ambiguities, in 2016–2017 the European Commission funded a study on the legal nature of EU allowances, although it is not clear what the outcomes of this work have been.<sup>64</sup>

### A new kind of entitlement?

A fundamental ambivalence remains, in addition, regarding the function of *Armstrong*-type property claims. Is the liberal model of property as the guardian of private interest adequate in the emissions trading context? While it is beyond the scope of this article to consider fully the extent to which statutorily-created entitlements differ from ‘natural’ property rights in corporeal things,<sup>65</sup> it is argued below that emissions trading regimes combine private and public values in a particular way. Although the analysis presented does not depend on a theory regarding the nature of ‘regulatory’ property rights,<sup>66</sup> it does emphasise the close link between public policy objectives and property rules. The internal logic of the property regime created under the EU ETS is not reducible to the scheme’s policy aims, but neither can the two be separated cleanly. As Manea argues, property here exists in an ‘instrumental’ context in which trading norms must serve a number of competing public and private interests.<sup>67</sup> The combination of environmental and commercial purposes distinguishes emissions allowances from other types of intangible entitlement such as intellectual property rights and milk quotas.<sup>68</sup>

In other pollution trading schemes, there has been a reluctance to recognise the credits or allowances generated as property.<sup>69</sup> At least part of the reason

61 See for example *Ineos* n 32 above; *Deutsche Bank* n 40 above.

62 An argument made by C. Michelon, ‘What Has Private Law Ever Done for Justice?’ (2018) 22 *Edinburgh Law Review* 329.

63 On the differing approaches to transfer between member states, see C. Godt, ‘Regulatory Property Rights – A Challenge to Property Theory’ in Godt (ed), n 3 above, 13, 33–35 and, on conflict of law issues, M. Appel and A. Burghardt, ‘Phishing of European Emission Allowances and Resulting Legal Implications’ (2012) 3 *Carbon and Climate Law Review* 228.

64 This study was carried out by the law and policy consultancy Milieu. See <https://www.milieu.be/portfolio/climate-change/#1564748054830-57fac068-d996>.

65 On debates surrounding the nature of ‘regulatory’ property rights, see for example Godt (ed), n 3 above; Manea, n 3 above, esp ch 6; K. Gray, ‘Regulatory Property and the Jurisprudence of Quasi-Public Trust’ (2010) 32 *Sydney Law Review* 237.

66 See sources *ibid*.

67 Manea, n 3 above, 155–156.

68 For more detailed analysis on this point, see *ibid*, ch 5.

69 For discussion and further references, see Reid and Nsoh, n 6 above, 57–58; Manea, *ibid*, 20–26 and ch 2.

for this appears to be a fear that to afford such entitlements proprietary status would restrict the ability of states to regulate or confiscate them without compensation.<sup>70</sup> This issue came to the fore in *ArcelorMittal Rodange et Schifflange SA v Luxembourg*<sup>71</sup> (*ArcelorMittal*), which concerned the involuntary surrender of allowances that had been allocated gratuitously to ArcelorMittal in respect of an installation that had ceased operation. While implicitly accepting that allowances could form part of a person's 'possessions' for the purposes of Article 17 of the Charter of Fundamental Rights of the European Union, the Court of Justice held that no expropriation had taken place. Improperly allocated allowances were not 'allowances' at all for the purposes of Directive 2003/87/EC and therefore did not constitute an 'asset' that formed part of ArcelorMittal's property.<sup>72</sup>

This decision raises some awkward questions around the status of such invalid allowances. If they had been sold to an unsuspecting buyer, would they continue to be susceptible to confiscation? If, as discussed in the next section, stolen allowances may be validly acquired in good faith, would the same apply to those that had been issued by a state as a result of fraud or mistake? How important is the ability of allowances to circulate freely? Fox argues that improperly issued corporeal money should gain the status of currency if received as a medium of exchange.<sup>73</sup> Should a similar property regime apply to allowances? The issue of fungibility is explored further below, but the political dynamics of emissions trading markets undoubtedly shape the doctrinal approach adopted.

Implicit in *Armstrong* and *ArcelorMittal* is an understanding of property rights as being primarily concerned with control over access to resources, rather than the number of persons against whom a right is exigible.<sup>74</sup> As Thomas Grey argues, when property is considered as a matter of competing entitlements to a variety of tangible and intangible resources 'the neutrality of the state as enforcer of private law evaporates'.<sup>75</sup> In the emissions-trading context, it is particularly apparent that private entitlements cannot pre-empt the need for political debate regarding the allocation of the costs and benefits of climate action. The next sections assert that the environmental aims of the EU ETS do distinguish EUAs from other types of incorporeal property; this adds a number of extra dimensions to the choice of transfer regime.

70 See Reid and Nsoh, *ibid*; S. Manea, 'Defining Emissions Entitlements in the Constitution of the EU Emissions Trading System' (2012) 1 *Transnational Environmental Law* 303, 309–310 and M.W. Gehring and C. Streck, 'Emissions Trading: Lessons From SOx and NOx Emissions Allowance and Credit Systems: Legal Nature, Title, Transfer, and Taxation of Emission Allowances and Credits' (2005) 35 *Environmental Law Reporter* 10219, 10221–10224.

71 EU:C:2017:179.

72 *ibid*.

73 D. Fox, *Property Rights in Money* (Oxford: OUP, 2008) para 1.71.

74 On this argument see further Gray, n 49 above, 294; Low and Lin, n 3 above, 387–389; Manea, n 3 above, ch 4; and, for an argument regarding the limits of property in deciding public questions of resource allocation, B. Barton, 'Property Rights Created under Statute in Common Law Legal Systems' in A. McHarg et al, *Property and the Law in Energy and Natural Resources* (Oxford: OUP, 2010) 80.

75 T.C. Grey, 'The Disintegration of Property' (1980) 22 *Nomos* 69, 79.

## CREATING COMMODITY: TRANSFER RULES IN THE REGISTRY REGULATION

### A 'commercial logic'

Trade in allowances is based on the idea of commensurability of carbon emissions across space and time; in this respect, emissions allowances function in a similar way to currency.<sup>76</sup> Analysis in this section is founded on the premise that the commodity status of allowances, like that of money, does not arise naturally, but is produced and maintained through legal and political action.<sup>77</sup> The relevant question is not simply whether two quantities are fungible, but which non-fungibilities matter.<sup>78</sup> The transfer rules set out in the Registry Regulation are implicated in this process in two important ways. They seek to maintain the nominal value of allowances, playing a role in the generation of what Fox describes as the 'perfect homogeneity which characterizes an ideal form of money'.<sup>79</sup> Linked to this is the desire to facilitate transfer and increase market liquidity. The greater the extent to which an environmental 'currency' facilitates comparative valuation of previously incommensurable things, the more liquid the market that will be created.<sup>80</sup> The internal dynamics of the commodity form inspire a drive towards acceleration and compression, ever faster circulation becoming the aim of the emissions trading market.<sup>81</sup>

It is argued below that these aims structure and infuse the property principles introduced in the Registry Regulation. Legal homogeneity is produced through the erasure of defects in title and the preclusion of claims that might attach to specific allowances. Equality between allowances must be maintained, regardless of origin or transaction history. The characterisation of emissions trading systems as reflecting, as the CJEU have recently put it, a 'commercial logic',<sup>82</sup> is understood to support a preference for 'dynamic' over 'static' security.<sup>83</sup> In the context of unauthorised transfer of allowances, this favours the protection of acquirers, regardless of any defect in the transferor's entitlement.

76 A comparison drawn on by, for example, J.P. Descheneau, 'The currencies of carbon: carbon money and its social meaning' (2012) 21 *Environmental Politics* 604; J. Salzman and J. B. Ruhl, 'Currencies and the Commodification of Environmental Law' (2000) 53 *Stanford Law Review* 607 and J. Button, 'Carbon: Commodity or Currency? The Case for an International Carbon Market Based on the Currency Model' (2008) 32 *Harvard Environmental Law Review* 571.

77 See C. Desan, *Making Money: Coin, Currency, and the Coming of Capitalism* (Oxford: OUP, 2014). The state's role here is not uncontroversial, see C. Proctor, C. Kleiner and F. Mohs, *Mann on the Legal Aspect of Money* (Oxford: OUP, 7th ed, 2012) paras 1.17–1.45.

78 As Salzman and Ruhl argue, this is implicitly a political decision: Salzman and Ruhl, n 76 above, 631. Compare NOx trading schemes in the United States, in which NOx gases are understood as local pollutants: Gehring and Streck, n 70 above, 10227.

79 Fox, n 73 above, para 2.47.

80 Salzman and Ruhl refer to a distinction between 'fat and sloppy' and 'thin and bland' markets, n 76 above, 646.

81 An argument made by J. Knox-Hayes, 'The spatial and temporal dynamics of value in financialization: Analysis of the infrastructure of carbon markets' (2013) 50 *Geoforum* 117, 120.

82 *Holcim* n 60 above at [64]. See also *ArcelorMittal* n 71 above at [22].

83 Low and Lin, n 3 above, 384.

## Negative effect of registration

The only evidence as to the distribution of rights over allowances is located in what is now a central electronic record, the Union Registry.<sup>84</sup> Article 19(1) of Directive 2003/87/EC requires that all allowances issued from 1 January 2012 onwards should be held in the Registry on accounts managed by the Member States.<sup>85</sup> An independent transaction log, the European Union Transaction Log (EUTL), is established to record the issue, transfer and cancellation of allowances.<sup>86</sup> What relevance does this have for acquisition and transfer of entitlements? As Low and Lin point out, it is important to distinguish clearly between the existence of a right and the presence of a record;<sup>87</sup> sometimes systems of registration will have a constitutive (or ‘positive’) effect but not always.<sup>88</sup> For example, the recording of a payment in a bank account ledger does not, in itself, create an enforceable liability on the part of the recipient’s bank.<sup>89</sup> The distinction turns on whether registration actually creates the right concerned (a positive system), or merely publicises a right that has arisen as a result of actions outside of the registry record (in which case registration has only negative effect). It is argued below that the most plausible interpretation of the Registry Regulation is that registration in the Union Registry has negative effect.

In accordance with the approach outlined earlier to determination of the legal nature of allowances, in those jurisdictions in which allowances are considered to be the object of property rights,<sup>90</sup> entitlements to allowances will be governed by national law. Allowances are considered to be situated in the territory of the Member State of the national account administrator.<sup>91</sup> It is beyond the scope of this article to investigate the international private law implications of these provisions, but the creation of an EU-wide register of property rights that nevertheless leaves the background rules of property law to individual member states has the potential to raise complex conflict of law issues.<sup>92</sup>

<sup>84</sup> See Registry Regulation, Arts 4(1) and (2).

<sup>85</sup> This change was provided for in Commission Regulation (EU) No 920/2010 of 7 October 2010 for a standardised and secured system of registries pursuant to Directive 2003/87/EC of the European Parliament and of the Council and Decision No 280/2004/EC of the European Parliament and of the Council OJ L 270/1.

<sup>86</sup> Emissions Trading Directive, Art 20.

<sup>87</sup> Low and Lin, n 3 above, 391.

<sup>88</sup> On the distinction between positive and negative systems of registration, see Scottish Law Commission, *Land Registration: Void and Voidable Titles* (DP no 125, 2004) para 1.9.

<sup>89</sup> See Fox, n 73 above, paras 5.60–5.63.

<sup>90</sup> For an overview of the legal treatment of allowances in various member states, see Art 21 reports, n 45 above. A number of member states did not provide information, or stated that legal treatment of EUAs was in the process of amendment; it is not, therefore, possible to state with certainty how far EUAs are recognised as property in other jurisdictions. On debates in Germany, see Godt, n 63 above, 33–35.

<sup>91</sup> Registry Regulation, Art 11(5).

<sup>92</sup> A point raised by Joanna Perkins on behalf of the Financial Markets Law Committee, *Letter to DG Environment, European Commission re Commission Regulation establishing a Union Registry in connection with the Union emissions trading scheme* (5 January 2012) 3 at [http://web.archive.org/web/20170108031100/http://www.finlc.org/uploads/2/6/5/8/26584807/issue116\\_letter\\_to\\_slingenberg\\_european\\_commission.pdf](http://web.archive.org/web/20170108031100/http://www.finlc.org/uploads/2/6/5/8/26584807/issue116_letter_to_slingenberg_european_commission.pdf). See also P. Zaman, ‘The new Registries Regulation – form over substance?’ in International Emissions Trading Association, *IETA*

The Registry records entitlements both to international credits and to EUAs; different types of registry account may hold different types of Kyoto entitlements and EU allowances.<sup>93</sup> Given the unique identifying number associated with each allowance and the fact that the Emissions Trading Directive appears to provide for the ‘transfer’ of allowances, Low and Lin make a cogent argument that the movement of an allowance from one account to another should be understood as a genuine transfer of entitlement rather than the substitution of one obligation for another.<sup>94</sup> Does the act of registration, however, function to create rights?

The dematerialised nature of allowances is cited by the European Commission as justification for its position that entries in the Union Registry are certainly evidence of right: ‘the title to an allowance or Kyoto unit should be established by their existence in the account of the Union Registry in which they are held.’<sup>95</sup> As to whether this evidence is conclusive, the Registry Regulation provides that ‘the record of the Union Registry shall constitute prima facie and sufficient evidence of title over an allowance or Kyoto unit’.<sup>96</sup> The Financial Markets Law Committee point out that this provision could be read as containing two ‘apparently contradictory’<sup>97</sup> statements: registration in a Registry account gives rise simultaneously to a rebuttable presumption as to title and an irrebuttable one. The extent to which ‘sufficient evidence’ may remain challengeable has been a matter of some debate in both English and Scots law.<sup>98</sup> If inconsistency is to be avoided, ‘sufficient evidence’ here must mean ‘sufficient to raise a prima facie case’ rather than ‘conclusive’ or ‘irrebuttable’.

On balance, it seems likely that this phrasing is intended to indicate an evidential presumption as to ownership rather than a clear conferral of title upon registration.<sup>99</sup> That impression is affirmed by non-English versions of the Registry Regulation; for example, the French language text refers to the Registry as providing ‘une preuve suffisante à première vue’ – literally ‘a proof sufficient at first sight’ or ‘prima facie sufficient proof’. This alternative formulation clarifies that the sufficiency is also prima facie, and therefore potentially challengeable.

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*Greenhouse Gas Market 2012* 42 at [https://www.iet.org/resources/Resources/GHG\\_Report/2012ghgreport\\_final.pdf](https://www.iet.org/resources/Resources/GHG_Report/2012ghgreport_final.pdf). For detailed discussion of the application of conflict of law rules in Germany, see Appel and Burghardt, n 63 above.

93 See Annex 1 to the Registry Regulation.

94 Low and Lin, n 3 above, 393.

95 Preamble to Registry Regulation, Art 8 (OJ L 122/2).

96 Registry Regulation, Art 40(2).

97 Financial Markets Law Committee, n 92 above, 3.

98 See discussion in *Bisset v Anderson* 1949 JC 106; M.L. Ross and J.P. Chalmers, *Walker and Walker: The Law of Evidence in Scotland* (Haywards Heath: Bloomsbury Professional, 4th ed, 2015) para 19.16.2. R. Glover, *Murphy on Evidence* (Oxford: OUP, 15th ed, 2017) para 2.3.4 appears to assume that evidence that is sufficient is not necessarily conclusive in the sense of unchallengeable.

99 Compare, for example, the Land Registration Act 2002, s 58, which provides a much clearer statement of the positive effect of registration, albeit one which has still given rise to debate: see S. Watterson and A. Goymour, ‘A Tale of Three Promises: (1) The Title Promise’ in A. Goymour, S. Watterson and M. Dixon (eds), *New Perspectives on Land Registration: Contemporary Problems and Solutions* (Oxford: Hart Publishing, 2018) 281.



There is no inconsistency between this interpretation and the dematerialised nature of allowances. Similar negative registers exist in respect of other types of incorporeal thing: for example, in English law, registration of a transfer of shares in the appropriate register is only *prima facie* evidence of title.<sup>100</sup>

### Transaction finality and rectification

This reading of the Regulation gives rise to a further complication: if the evidence of the register is challengeable, it is logically possible for entitlements to exist outside of the Registry record. This may give rise to what the Scottish Law Commission describes as ‘bijuralism’, ie a disjuncture between rights recorded on the register and the position according to the underlying rules of property law, which implicitly determine whether the register can be considered accurate.<sup>101</sup> In theory, it is open to national principles of property law to determine that an entry in the Union Registry requires correction. However, there is no provision in the Registry Regulation that would give effect to any such off-register rights by means of an opportunity to rectify the register.

Article 70 of the Regulation provides for the unwinding of certain types of transaction initiated in error, but transfer of allowances between account holders is not one of the transactions mentioned. Subject to this article, and the completion of certain automated verification processes conducted pursuant to Article 103 of the Regulation, ‘a transaction shall become final and irrevocable upon its finalisation pursuant to Article 104.’<sup>102</sup> Unless, therefore, rights arise in national law to compel a new transaction that could then be registered in the Union Registry,<sup>103</sup> transfers of allowances vitiated by fraud or technical error cannot be unwound. In practice, the inevitable conclusion is that registration as holder of an allowance in the Union Registry has a strong protective effect. Indeed, it is difficult to see how a negative system of registration that does not allow for correction of register error differs in practice from a system in which registration operates to confer title. Comparisons can be drawn with the CREST register for uncertificated securities, in which registration gives rise to a strong presumption of authenticity.<sup>104</sup>

This approach is justified in the Registry Regulation by reference to the need to reduce the disruption to Registry systems and emissions trading markets that rectification might cause.<sup>105</sup> A connection is also drawn between substitutability of allowances (fungibility) and transaction finality.<sup>106</sup> However, the cutting off

100 In respect of certificated and uncertificated shares see Companies Act 2006, ss 127, 768 and Uncertificated Securities Regulations 2001 (SI 2001/3755) reg 24(1) respectively. For discussion, see Bridge et al (eds), n 55 above, paras 32-094–32-111.

101 Scottish Law Commission, n 88 above, para 1.11.

102 Registry Regulation, Art 40(3).

103 These provisions are stated to be without prejudice to such rights: Registry Regulation, Art 40(3).

104 See Uncertificated Securities Regulations 2001 (SI 2001/3755) reg 35; Bridge et al, n 55 above, para 30-149.

105 Preamble to Registry Regulation, Art 8 (OJ L 122/2).

106 *ibid*, Art 8(8) (OJ L 122/2).



of prior claims comes at a cost in terms of integrity and responsibility, both of which are intimately connected to transaction history. It is argued below that this approach has implications for both transactional and environmental justice. A claim for rectification based on, for example, fraud or theft has moral and political, as well as legal, significance.<sup>107</sup> The abstract entitlements recorded in the Registry are, in Derrida's metaphor, spectres, idealised forms.<sup>108</sup> Claims outside this system are reduced to shadows, but cannot be erased entirely; ultimately, they may demand some form of redress.

### Fungibility and the availability of specific recovery

In line with the emphasis on transaction finality, the Registry Regulation further limits the scope of national remedies that might lead to the unwinding of a registered transaction. Article 40(1) states that '[a]n allowance or Kyoto unit shall be a fungible, dematerialised instrument that is tradable on the market.' This is asserted to imply that 'any recovery or restitution obligations that may arise under national law in respect of an allowance or Kyoto unit shall only apply to the allowance or Kyoto unit in kind.'<sup>109</sup> The position of the Regulation is thus that claims in the case of, for example, theft or insolvency, should not attach to any specific allowance.<sup>110</sup> This is despite each allowance having a unique identifying number.<sup>111</sup>

What is meant by fungibility in this context? One classic commercial law text describes fungibility of intangible property as involving consideration both of 'whether [a collection of intangibles is] legally divisible into objects of separate ownership' and of whether these objects are, nevertheless, capable of mutual substitution.<sup>112</sup> Separability would appear to require the presence of some means of identification,<sup>113</sup> but substitutability depends on the attitudes of market participants.<sup>114</sup> This will be informed by the legal and social context. For example, even where shares are individually numbered, this difference is not material to the share's legal function.<sup>115</sup> The Registry Regulation has the clear policy that all allowances should be treated as interchangeable by market participants. One allowance can, by means of its serial number, be distinguished

107 On the rich philosophical heritage of fraud in Scots law, see D. Reid, *Fraud in Scots Law* (PhD thesis, University of Edinburgh, 2012) esp ch 3; in the context of colonialism and the racism inherent in erasure of pre-existing claims to land, see S. Keenan, 'Smoke, Curtains and Mirrors: The Production of Race Through Time and Title Registration' (2017) 28 *Law and Critique* 87.

108 J. Derrida, *Spectres of Marx: The State of the Debt, the Work of Mourning and the New International* (1993, Abingdon: Routledge, Eng tr, 1994).

109 Registry Regulation, Art 40(3).

110 *ibid.*

111 *ibid.*, Art 41(3).

112 R. Goode and E. McKendrick, *Goode on Commercial Law* (London: Lexis Nexis, 5th ed, 2016) para 2.90.

113 A basic requirement for the existence of a proprietary claim: see for example R. Goode, 'Are Intangible Assets Fungible?' [2003] LMCLQ 379, 382.

114 A point made by many: see for example Gorzelak, n 30 above, 380; Goode, *ibid.*, 383.

115 Assuming shares are of the same issue/class. This point is made by, for example, Gorzelak, *ibid.*, 380; Goode and McKendrick, n 112 above, para 2.90.

from another but the terms of Article 40(1) make plain that this is not intended to compromise their functional equivalence.

How does substitutability relate to the stance that proprietary claims in respect of specific allowances should not be permitted? The existence of any necessary connection between the unwinding of transactions and fungibility is disputed;<sup>116</sup> there are many other factors that might influence the availability of specific recovery within a legal system. Moreover, a claim for specific recovery may have advantages compared to other, non-proprietary, claims that apply regardless of whether the property is fungible or not. However, from the perspective of the Registry Regulation, a claim for specific recovery is inevitably historically based. It threatens to reintroduce the very questions and distinctions between allowances that the provisions regarding transaction finality have sought to exclude. Further, the availability of specific recovery is of greatest importance where objects are not functionally interchangeable. The logic of emissions trading is such that equivalent allowances should always, in theory, be sufficient to satisfy a claim.

The Regulation is clear as to the doctrinal status of allowances. However, the extent to which legal fungibility can insulate allowances from political and moral conflict is less certain. It is argued below that, as the political processes surrounding the creation of individual allowances are not fungible, the origins and trajectories of particular allowances will remain relevant.

### Protection of acquirers in good faith

As an individual allowance is transferred between market participants, it begins to accumulate a legal and material history. Such history has the potential to give rise to differentiation between validly acquired allowances and those obtained following a defective transfer. Alongside the prohibition of specific recovery, the Registry Regulation renders this distinction irrelevant, providing that ‘a purchaser and holder of an allowance or Kyoto unit acting in good faith shall acquire title to an allowance or Kyoto unit free of any defects in the title of the transferor’.<sup>117</sup> Interpretation of the term ‘good faith’ is left to national law.<sup>118</sup>

Given the ability of EUAs to pass quickly between legal systems, it remains to be seen whether the existence of this provision will lead to the development of a harmonised interpretation of the Registry Regulation or a shared conceptual framework regarding terms such as ‘good faith’.<sup>119</sup> The construction of a ‘European’ property law continues to be controversial; there is a tendency to see shared property principles as a greater threat to sovereignty and internal doctrinal consistency than contractual rules.<sup>120</sup> In

116 See for example Financial Markets Law Committee, n 92 above; Low and Lin, n 3 above, 403.

117 Registry Regulation, Art 40(4).

118 No definition is provided in the Registry Regulation. See also information on the Commission website at [https://ec.europa.eu/clima/policies/ets/registry\\_en#tab-0-2](https://ec.europa.eu/clima/policies/ets/registry_en#tab-0-2).

119 On the interaction between national legal systems and EU law here, see Godt, n 63 above, 32–35.

120 For exploration of this tendency, see D. Caruso, ‘Private Law and Public Stakes in European Integration: The Case of Property’ (2004) 10 *European Law Journal* 751.

practice, consistent interpretation of good faith is of less importance than the divergence in approaches to the legal nature of allowances.

The facts in *Armstrong* provide a good example of the type of scenario affected by the Regulation. Armstrong, the operator of a linoleum factory based in Germany, held a number of EUAs in an account with what was, at that point, the national registry for the purpose of complying with its obligations under the EU ETS. Following a 'phishing' scam, hackers gained access to Armstrong's account and were able to fraudulently transfer Armstrong's credits to the account of an English trader, Winnington. Winnington quickly sold on the EUAs to a third party, who was not involved in the litigation.

Under the rule now enacted, were Winnington to be able to establish that it had bought the allowances in good faith, Armstrong would be deprived of title at the point when they were registered in Winnington's name. This would be due not to any guarantee of title that might be provided by the Union Registry, but rather to the fact that registration completed Winnington's (good faith) purchase. In *Armstrong* itself, if and when Armstrong had lost legal title to the allowances was open to debate. Stephen Morris QC had to resort to a potentially confusing notion of 'de facto legal title' based on 'ministerial control' to explain how the fraudsters had interfered with Armstrong's rights to the EUAs.<sup>121</sup> The new rules operate to make this situation clearer: Armstrong would unambiguously have been deprived of its rights over the EUAs in question.

It is not the moral qualities associated with 'good faith' that justify protecting acquirers over persons with competing claims here.<sup>122</sup> As with the exclusion of specific recovery, conferral of title functions as a means of maintaining homogeneity and encouraging market participation, via the generation of trust and confidence among market actors.<sup>123</sup> The logic of facilitation of trade is seen to favour dynamic security (protection of acquirers) over static security (protection of existing owners).<sup>124</sup> Good faith provisos may be more usefully understood as filters for inappropriate claims, rather than stand-alone justifications. Indeed, they are liable to themselves introduce a certain amount of instability and uncertainty.

The guarantee of good title is a further means by which the notional fungibility of allowances is maintained. When historical defects in title are eliminated, the levels of risk associated with each allowance are equalised. As to whether this is necessary, Worthington has suggested that features that cannot be discovered at the time of the transfer are not relevant to whether the goods are

121 See further *Armstrong* n 46 above at [276] and, for discussion, Low and Lin, n 3 above, 391. See also Sheehan, n 46 above, 426–427.

122 For further discussion of the justificatory role of good faith, see B. Holligan, *Protection of Ownership and Transfer of Moveables by a Non-Owner in Scots Law* (PhD thesis, University of Edinburgh, 2015) part 6(D)(2). In *Armstrong*, initial arguments regarding the culpability of Armstrong employees whose passwords had been compromised by 'phishing' attacks were dropped during litigation: see *Armstrong* *ibid* at [25].

123 For example, when discussing the currency of money, Fox refers to the need to eliminate 'information uncertainty' regarding the possibility of defects in the transferor's title, see Fox, n 73 above, para 2.07.

124 See for example Low and Lin, n 3 above, 384–385. For discussion and further references, see Holligan, n 122 above, part 5C(2).

fungible or not.<sup>125</sup> She gives the example of sterile grains of wheat or shares with defects in title, which nevertheless remain fungible.<sup>126</sup> While this analysis is logically persuasive, the material operation of markets is liable to belie such formal equality. The unreliability of particular sources, whether of grain or allowances, may be suspected in advance and could therefore ‘taint’ particular units. A guarantee of valid title removes the need for such distinctions. A useful analogy is the existence of similar rules in respect of coins and banknotes, which Fox characterises as supporting the economic function of currency by preventing discounting.<sup>127</sup> The ‘anonymity’ of money as medium facilitates impersonal transaction between parties who do not know one another.<sup>128</sup>

## RESTORING PROPRIETY

### The illusion of fungibility

The cumulative effect of the provisions described above is to maintain the consistency of emissions allowances as both units of account and stores of value. However, such consistency comes at a cost. A growing critical literature has argued that the complex blend of public and private interests affected by the EU ETS cannot be captured adequately by an abstract carbon ‘currency’.<sup>129</sup> There may be various biological and political reasons why one unit of CO<sub>2</sub>e should not be treated as equivalent to another.<sup>130</sup> This is a critique that strikes at the very premise of emissions trading, but, from a doctrinal perspective, it illuminates the contradictions between specificity and abstraction that transfer rules must manage. If we take what Godt refers to as the ‘publicness of property’ seriously, our choices as to which non-equivalences matter must be subjected to scrutiny.<sup>131</sup>

This section develops this argument to claim that, even within an EU ETS based on fungibility of allowances, property rules cannot be reduced to a matter of commodity creation. As Alexander puts it, property is about propriety as well as commodity.<sup>132</sup> Propriety here relates to property’s function as ‘the material foundation for creating and maintaining the proper social order, the private basis for the public good.’<sup>133</sup> This characterisation applies to the property structures that regulate our use of corporeal things, but manifestly also to the function of emissions trading schemes in coordinating emissions reduction activity.

125 S. Worthington, ‘Sorting out ownership interests in a bulk: gifts, sales and trusts’ (1999) *Journal of Business Law* 1, 5.

126 *ibid.*, 6.

127 See Fox, n 73 above, paras 2.24–2.55.

128 See *ibid.*, para 2.18.

129 See for example G. Bryant, *Carbon Markets in a Climate-Changing Capitalism* (Cambridge: CUP, 2019); Salzman and Ruhl, n 76 above; Descheneau, n 76 above; Knox-Hayes, n 81 above, 121.

130 Salzman and Ruhl distinguish non-fungibilities of space, time and type, see *ibid.*, 626–630.

131 C. Godt, ‘Regulatory Property Rights: New Insights from Private Property Theory for the Takings Doctrine’ (2017) 6 *European Property Law Journal* 158, 161.

132 G. Alexander, *Commodity and Propriety: Competing Visions of Property in American Legal Thought 1776–1970* (Chicago, IL: University of Chicago Press, 1997).

133 *ibid.*, 1.

Without claiming that there is any fixed or limited set of values underpinning emissions trading schemes,<sup>134</sup> the remainder of the article argues that the public and political functions of property suggest that a different approach to transfer of allowances is needed. In particular, this section identifies historically-conditioned ideas of integrity and responsibility as important foundations for both transactional and environmental justice.

## History and origins

The commodity-based property rules in the Registry Regulation attempt to erase historical distinctions between allowances, but this is likely to displace, rather than resolve, legal and political conflict. To return to the metaphor of the spectre, the past may continue to intrude if not confronted. Many property systems are deeply historical: establishing title depends, at least to some extent, on enquiry into the material and legal past of the thing concerned. At one extreme, Pottage describes transfer of land prior to land registration as embedded in ‘networks of organic or practical memory’.<sup>135</sup> Within the EU ETS, transaction history has a public as well as private significance: it is a fundamental private law principle that a valid transfer requires a valid origin (*nemo dat quod non habet*),<sup>136</sup> but all transactions are embedded within a broader justificatory story that has political and ecological dimensions.

The dispute over the cancellation of improperly allocated allowances in *ArcelorMittal*<sup>137</sup> illustrates that this public story includes the creation and initial allocation of allowances, as well as their transfer within the market. It is for this reason that, despite their functional equivalence, allowances require the stable identity provided by their unique serial number. To the extent that past transactions justify current holdings, they are intimately linked to questions of integrity and responsibility, discussed further below; the design of the EU ETS makes it impossible to separate the results of market trading from the ability to meet environmental liabilities by surrendering allowances.

The real-life, local and specific operation of the market challenges the ideal of homogeneity of allowances within both the public and the private realm. As Descheneau explains, the commodity status of carbon has never fully stabilised.<sup>138</sup> The political process of cap-setting and initial allocation of allowances has proven far from anodyne;<sup>139</sup> Bailey and Maresh refer to the ‘territorial logic’

134 Manea, n 3 above, argues that regimes must account for a range of competing values and purposes. For an argument that emissions trading reflects a social obligation norm, see B. France-Hudson, ‘Surprisingly Social: Private Property and Environmental Management’ (2017) 29 *Journal of Environmental Law* 101.

135 A. Pottage, ‘The Measure of Land’ (1994) 57 *MLR* 361, 361.

136 No one can give what he or she does not have.

137 n 70 above.

138 n 76 above, 606.

139 On the contests over regulatory power in this area, see S. Bogojevic, *Emissions Trading Schemes: Markets, States and Law* (Oxford: Hart Publishing, 2013) ch 5.

that reimposes itself on the supposedly neutral market domain.<sup>140</sup> As with currency, there is an important link to sovereignty: in the end it is this political foundation that maintains a currency's value.<sup>141</sup> Even new forms of currency not based on state authority require to tell a convincing political origin story.<sup>142</sup> The decision by the European Commission to prevent the surrender of allowances issued by the United Kingdom after its exit from the EU, requiring the country code of UK-issued allowances to be made visible, demonstrates that, regardless of legal fungibility, the political origin of each allowance remains latent and cannot be erased entirely.<sup>143</sup> The politics of allocation are also relevant when linking emissions trading schemes.<sup>144</sup> Attention to allocation history is essential here to avoid windfalls and to ensure harmonisation of responsibilities across linked schemes.

An invisible, but important, distinction is that between EU allowances created in accordance with the EU cap on emissions and those produced by the exchange of international credits generated from offset activities. While identical in Registry accounts,<sup>145</sup> the location and cause of greenhouse gas emissions continues to be significant. Even those who support the construction of carbon as abstract currency recognise that, like coins of different currencies, units of CO<sub>2</sub>e from different schemes are often not exactly equivalent.<sup>146</sup> The limits to abstraction and fungibility are evident in the restrictions imposed by the Commission within the EU ETS upon the use of offset credits derived from industrial gas reduction projects, which turned out to be incentivising the production of other harmful gases.<sup>147</sup> It has also been necessary to ensure that international credits surrendered in the EU ETS are not 'recycled' and used again in compliance with international emissions accounting obligations.<sup>148</sup> Again, reckoning with political and ecological origins is critical in securing environmental integrity; the success of the EU ETS will ultimately be judged on its material effects, which thus far have been underwhelming.<sup>149</sup> A close

140 I. Bailey and S. Maresh, 'Scales and networks of neoliberal climate governance: the regulatory and territorial logics of European Union emissions trading' (2009) 34 *Transactions of the Institute of British Geographers* 445.

141 Again, the role of the state here is controversial: see sources at n 76 above.

142 On bitcoin, see K.F.K. Low and E. Teo, 'Legal Risks of Owning Cryptocurrencies' in D.L.K. Chuen and R. Deng (eds), *Handbook of Blockchain, Digital Finance, and Inclusion, Volume 1* (London: Elsevier, 2017) 225, 234.

143 See sources at n 4 above. These provisions will only apply where allowances issued by the UK are not surrendered before exit.

144 See F.G. Tiche, S.E. Weishaar and O. Couwenberg, 'Carbon Leakage, Free Allocation and Linking Emissions Trading Schemes' (2014) 2 *Carbon and Climate Law Review* 97.

145 H. Lovell and D. Liverman, 'Understanding Carbon Offset Technologies' (2010) 15 *New Political Economy* 253, 260, note that this disassociation is deliberate in the compliance market.

146 See for example Button, n 76 above, 585.

147 Commission Regulation (EU) No 550/2011 on determining, pursuant to Directive 2003/87/EC of the European Parliament and of the Council, certain restrictions applicable to the use of international credits from projects involving industrial gases OJ L 149/1. See further D. Mackenzie, 'Making things the same: Gases, emission rights and the politics of carbon markets' (2008) 34 *Accounting, Organizations and Society* 440, 444-447; G. Bryant, 'The Politics of Carbon Market Design: Rethinking the Technopolitics and Post-politics of Climate Change' (2016) 48 *Antipode* 877, 881-884.

148 See references at nn 40-42 above.

149 See references at n 38 above.



link has been identified between initial allocation of allowances and abatement decisions.<sup>150</sup> Without historically-based responsibility, incentives to invest in long-term technological improvements are likely to be diluted.<sup>151</sup>

Inextricable from this material history is the legal history of market transfers of allowances. Individual allowances may have been transferred from the legitimate holder's account in circumstances where consent was absent or vitiated. The provisions of the Registry Regulation respond to the previously mentioned series of 'phishing' attacks and electronic thefts from national registries in 2010 and early 2011, in which millions of allowances were stolen.<sup>152</sup> This caused access to national registries to be suspended in January 2011.<sup>153</sup> It has been reported that some national authorities began to publish blacklists of the serial numbers of stolen allowances, and that certain traders began to request guarantees of original acquisition from government auction.<sup>154</sup> Nield and Pereira note that the BlueNext exchange even opened a 'safe trading zone' that allowed purchasers to choose only those allowances with a verified trading history.<sup>155</sup> In *Holcim*,<sup>156</sup> a cement producer unsuccessfully sought damages from the European Commission on account of its failure to disclose the location of stolen allowances.

Registry policy here is caught between the moves in environmental governance towards transparency and availability of information and the drive in commodity markets to compress information in order to facilitate transfer.<sup>157</sup> The provisions discussed earlier privilege anonymous and frictionless trade. They were accompanied by restrictions on the disclosure of the serial numbers of allowances, presumably to discourage any investigation of past transactions.<sup>158</sup> This is a position that has been justifiably criticised by environmental NGOs, on the grounds that it makes scrutiny of trading activity more difficult.<sup>159</sup> However, although the history of an individual allowance is

150 T. Laing et al, 'The effects and side-effects of the EU emissions trading scheme' (2014) 5 *WIREs Climate Change* 509, 511.

151 R. Baldwin, M. Cave, and M. Lodge, *Understanding Regulation: Theory, Strategy, and Practice* (Oxford: OUP, 2nd ed, 2011) 206.

152 European Commission, *MEMO/11/34*, 21.1.2011 at [http://europa.eu/rapid/press-release\\_MEMO-11-34\\_en.htm](http://europa.eu/rapid/press-release_MEMO-11-34_en.htm) and Oliver Sartor (Caisse des Dépôts Climat Research), *Climate Brief No 4 February 2011: Closing the door to fraud in the EU ETS*.

153 European Commission, *Press Release 19.01.2011 Announcement of transitional measure: EU ETS registry system* at [https://ec.europa.eu/clima/news/articles/news\\_2011011901\\_en](https://ec.europa.eu/clima/news/articles/news_2011011901_en).

154 Appel and Burghardt, n 63 above, 229 fn 6; J. Chaffin, 'Carbon Trading: Into Thin Air' *Financial Times* 14 February 2011.

155 n 10 above, 206.

156 n 60 above.

157 For an example of this conflict, see C-524/09 *Ville de Lyon* EU:C:2010:822. For analysis of attempts to build transparency into environmental markets, see R.L. Glicksman and T. Kaime, 'A Comparative Analysis of Accountability Mechanisms for Ecosystem Services Markets in the United States and the European Union' (2013) 2 *Transnational Environmental Law* 259, 273-276.

158 See Registry Regulation, Art 110(1); Zaman, n 92 above, 43-44; and European Commission, *MEMO/11/495* 8.7.2011 at [https://ec.europa.eu/commission/presscorner/detail/en/MEMO\\_11\\_495](https://ec.europa.eu/commission/presscorner/detail/en/MEMO_11_495).

159 See Sandbag, *Briefing: Fresh concerns over the transparency of the EU emissions trading scheme (ETS)* (2011) at <https://sandbag.org.uk/project/fresh-concerns-over-the-transparency-of-the-eu-emissions-trading-scheme-ets/>.



now more difficult, albeit not impossible,<sup>160</sup> to trace, integrity still rests on the ability to link current to past transactions.

### Transactional and environmental integrity

Integrity here has similarly both public and private dimensions. Participation in the market is often involuntary and the meeting of public policy objectives delegated to market systems;<sup>161</sup> the corollary of this is that market transactions have wider implications for environmental policy.<sup>162</sup> The reliability of the registry is directly linked to environmental integrity: as the CJEU has noted, ‘accurate accounting is inherent in the very purpose of the directive’.<sup>163</sup> The approach taken to transactional integrity by the Registry Regulation is not convincing; it may have averted short-term crisis but, it is argued below, will not generate long-term stability. In order to fulfil the aims of the EU ETS, a better balance is required between liquidity and integrity. Property norms should support the just allocation of responsibility rather than simply suppress dispute.

In theory, transfer rules may impact the environmental integrity of the EU ETS in a number of ways. Unjust allocations may have direct environmental impacts, for example a factory owner such as Armstrong who has his or her allowances stolen may be forced to acquire new allowances on the market, diverting resources away from environmental improvements. There may also be indirect impacts if transactional problems disturb market function: some participants may be reluctant to engage in trading, and market distortion may prevent the most efficient environmental outcomes being reached. This is less an empirical claim than a logical implication from the premise that market exchange will move emissions-reduction activity to the most cost-effective locations. Such activity depends, in many ways, on property, in the sense of a mechanism that links resources to particular persons. If this relation mal-functions, the market will no longer provide the correct incentives to reduce emissions.

This is not to suggest that property rules alone can produce integrity. However, even more than in the case of, for example, crypto-currencies, the status of allowances as objects of property, with a stable identity, is important to their function.<sup>164</sup> Given the connection between individual, numbered allowances and actual emissions, market activity provides a connection, however distant

160 In *Holcim*, the CJEU emphasised that confidential information regarding market transactions could be obtained and shared by national authorities, allowing victims of theft to pursue relevant legal claims.

161 Bogojevic, n 139 above, 176 refers to the ‘co-production’ of market and environmental objectives.

162 For example, there is a need to ensure transparency and accountability: see Glicksman and Kaime, n 157 above.

163 *ArcelorMittal* n 71 above at [24]. This point is emphasised by F Dinguirard et al, *Emissions Trading Registries: Guidance on Regulation, Development and Administration* (World Bank Group, 2016) x.

164 Affording proprietary status to electronic tokens may carry some risks for users. See Low and Teo, n 142 above.

and tenuous, to responsibility for action. Despite the risks generated by historical defects, the correlation of past and future entitlements is of both public and private significance.

The Commission's decision in 2011 to prevent the following or recovery of specific allowances raises suspicion that property rules are being used here to mask deficiencies in market regulation. High-profile thefts had been followed by a 75 per cent fall in spot trading volumes and a fall in carbon prices.<sup>165</sup> The desire to avoid further market disruption is reflected in the exclusion of historically-based property claims in the Registry Regulation. It is questionable to what extent this, in effect, deregulation, is the best way to address such difficulties. To some extent, it is illustrative of a broader tendency towards crisis within financial systems.<sup>166</sup> There is a contradiction in the commercial need for stability and predictability, which favours not only abstraction, but also the creation of uniform behavioural standards, and the fact that any regulatory process of standardisation and bureaucratisation will in itself operate to impede market liquidity.<sup>167</sup> This is particularly acute in the emissions trading market, which is indisputably constituted by state regulation.<sup>168</sup>

It remains the case that rules of national law may operate to redress the imbalance outlined here, but, in the context of an EU-wide market, a unitary approach has obvious benefits. The analogy drawn, but not pursued, in *Holcim* between money laundering and emissions trading fraud is worth considering further: it is difficult to tackle EU-wide financial flows at a purely national level and it is widely accepted that banks, as channels through which funds move, have some responsibilities to detect and prevent suspect transactions. The same applies to emissions trading registries. Indeed, it seems likely that there is a close connection between the type of fraudulent activities outlined earlier and money laundering.<sup>169</sup> Proprietary remedies are merely one response to fraud and theft; it is suggested below, however, that they fulfil a unique function.

## Responsibility and transfer rules

As property rules, on this analysis, secure the distribution of responsibilities within the market scheme, the conflict between integrity and liquidity appears particularly intractable. Both are vital to market operation. The remainder of the article argues that, given the fusion of public and private interests outlined above, the EU ETS is distinct from other types of commodity market; a more cautious approach to unauthorised transfer is needed. This follows both from the aims of the EU ETS and the nature of trading activity, in which both voluntary and involuntary participants are implicated. To encourage careful trading

165 Nield and Pereira, n 10 above, 206–207.

166 On the contradictions within finance capitalism, see D. Harvey, *The Limits to Capital* (London: Verso, 2006) ch 9.

167 A point expressed in slightly different terms by Button, n 76 above, 587.

168 Bogojevic, n 139 above.

169 See Frunza, n 39 above, ch 6.

behaviour, while maintaining confidence, only those who acquire allowances via a valid transfer from the registered owner should receive a guaranteed title.

This position is founded on the view expressed earlier that the nature of an EUA, and its connection to the material world, means that proprietary logic is necessary to secure environmental, as well as transactional, justice. Compare, for example, the balance of liabilities in electronic banking systems, which is generally settled by public regulation.<sup>170</sup> As Fox explains, the most important practical issue is the just and efficient allocation of loss between holder and bank, rather than the possibility of a proprietary claim.<sup>171</sup> However, the identity of an individual EUA is distinct in a way that the identity of a notional unit of money in an electronic bank account ledger is not (but a unit of algorithm-based currency such as bitcoin may be).<sup>172</sup> As outlined earlier, origins and history have a specific significance within the EU ETS. Legal fungibility notwithstanding, the ability to identify and follow particular allowances supports transparency and ensures that circulation does not operate to obscure fraud. The more abstract the commodity created, the longer and more complicated are the chains of responsibility involved and the more difficult the assessment of risk. An extreme example is the rise of collateralised debt obligations in the United States prior to the 2007–2008 financial crisis.<sup>173</sup>

The fungibility of allowances should operate, in theory, to depoliticise and deterritorialise the process of emissions reduction, as the possibility of trade-offs means that there is no longer a need to obtain political consensus around specific actions by specific persons. Questions of distribution of liability can only be deferred, however, not avoided entirely.<sup>174</sup> In reality, the apparent equivalence between emissions allowances serves only to obscure the fact that fault is by no means equally shared. A small number of actors are responsible for a disproportionate fraction of the emissions covered by the EU ETS.<sup>175</sup> This pre-existing inequality is compounded by the uneven development of the EU ETS market: allocation decisions have resulted in large windfalls and have fundamentally reinforced existing lines of power and responsibility.<sup>176</sup> Examples

170 For the English position, see I.H.-Y. Chiu and J. Wilson, *Banking Law and Regulation* (Oxford: OUP, 2019) ch 3.

171 Fox, n 73 above, para 5.126.

172 As Green argues, the cryptographic data string that constitutes a bitcoin can be understood as a thing in its own right: see S. Green, 'It's Virtually Money' in D. Fox and S. Green (eds), *Cryptocurrencies in Public and Private Law* (Oxford: OUP, 2019) para 2.04. This does not necessarily mean, however, that a bitcoin is transferred from one party to another: D. Fox, 'A Crypto-Coin as an Object of Property' in Fox and Green, *ibid* para 6.18. For a slightly different analysis, see K.F.K. Low and E. Teo, 'Bitcoins and Other Cryptocurrencies As Property?' (2017) 9 *Law, Innovation & Technology* 235, 253.

173 On this, see T. Juutilainen, 'Law-Based Commodification of Private Debt' (2016) 22 *European Law Journal* 743, 753.

174 Baldwin, Cave, and Lodge, n 151 above, 200.

175 G. Bryant, 'Creating a level playing field? The concentration and centralisation of emissions in the European Union Emissions Trading System' (2016) 99 *Energy Policy* 308, 310 finds that two per cent of ultimate owners were responsible for over 75 per cent of verified emissions during the period 2005–2012.

176 On the difficulty in ensuring distributional fairness, see Baldwin, Cave and Lodge, n 151 above, 213–214. R. Martin, M. Mûls and U.J. Wagner, 'Trading Behavior in the EU ETS' in M. Gronwald and B. Hintermann, *Emissions Trading as a Policy Instrument: Evaluation and Prospects*

range from the disproportionate use of linking credits by a small number of large emitters,<sup>177</sup> to the fact that such actors, particularly state-owned enterprises, are more likely to be engaged in trading.<sup>178</sup>

What relevance does this have to the proprietary status of allowances? The abstraction afforded to currency is valuable precisely because it limits the transmission of liability and accountability in commercial contexts. As a basis for environmental policy, this is less attractive. There is a public interest in ensuring that transactions distributing important responsibilities are amenable to scrutiny. Despite the ostensible neutrality of property rules, the inequalities maintained by the EU ETS market are reflected in the small number of participants from whom large numbers of allowances were stolen.<sup>179</sup> In *Holcim*, for example, the large cement producer that lost one million allowances had already benefited from over-allocation of allowances. The ability to track the historical trajectory of individual allowances as they circulate helps to make these connections visible.

## DESIGNING ACCOUNTABLE SYSTEMS

### Information, good faith and obligation

Within the law of personal property, evidential difficulties in relation to tangible property have furthered the adoption of ahistorical rules protecting good faith purchasers.<sup>180</sup> In the case of intangibles such as EUAs, the major problem is not that evidence (in the form of transaction records) is lacking altogether, but determination of how such information is distributed and made use of. In light of the connections drawn earlier between environmental and transactional integrity, this section argues that those misled by inaccurate registry records should be protected, but not those who purchase from a thief or fraudster posing as the registered holder of allowances.

This approach is based on a distinction between transactional error, in which the Registry record is correct prior to the transfer, and registry error, in which the information in the Registry pre-transfer is incorrect.<sup>181</sup> Registry error is outwith the control of market participants, but transactional error can (to some extent) be prevented if parties act with a reasonable level of care during the transaction. In *Armstrong*, the ability of the hackers to transfer Armstrong's allowances into Winnington's account was important in misleading Winnington. However, the judgment implies that, if Winnington had taken more care in

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(Cambridge, MA: MIT Press, 2015) 213, 225 note a 'status quo bias', whereby the outcome of trading often mirrors initial allocation.

177 Bryant, n 130 above, 316–317.

178 C. Kettner, 'Analyses of allowance transactions – firm behaviour in the first trading phase and learnings from the data' in Weishaar and Woerdman, n 10 above, 69.

179 See Nield and Pereira, n 11 above, 202–203.

180 See for example Sale of Goods Act 1979, ss 24 and 25 and, for analysis of the importance of epistemological considerations, Holligan, n 122 above, part 5B(1).

181 On the difference between transactional and registry error, see Scottish Law Commission, n 88 above, paras 3.15–3.18.

ascertaining the identity of the persons with whom they were transacting, the fraud may have been uncovered at an earlier stage.<sup>182</sup>

A better balance could be struck here between integrity and liquidity. Modern cryptographic techniques make it possible to build information systems that can distinguish the objects of invalid transfers from those that have been validly transferred.<sup>183</sup> However, this does not mean that key market actors, such as exchanges, want this information; in some ways, it seems that a certain knowledge deficit is necessary for markets to function. Anderson, Shumailov and Ahmed refer to ‘information avoidance’;<sup>184</sup> in the emissions trading context, neither buyers, sellers nor regulators have any incentive to examine the commodity traded, or its history, too closely.<sup>185</sup> This conflict between abstraction and transparency has been explored above with reference to the CJEU’s approach in *Holcim*.

A cynical view of the recent reforms is that they were intended primarily to protect the Commission, as operator of the Union Registry,<sup>186</sup> from litigation.<sup>187</sup> This objective is not entirely without merit. In relation to money, Fox points out that one of the principal modern functions of property rules protecting *bona fide* purchasers is to protect banks as ‘channelling points’ that enable the circulation of funds.<sup>188</sup> It is reasonable to compare here the function of banks to that of the Union Registry.<sup>189</sup> A similar justification could be made for protecting the ability of the Registry to operate with minimal exposure to litigation. However, this does not necessarily mean that traders should be protected from the consequences of transactional irregularities that they had the ability to guard against.

In contrast to the position taken by the German legislator, which has chosen to protect even bad faith acquirers of EUAs from challenge,<sup>190</sup> it is submitted that the emissions market does not require total abstraction to function. Promotion of certainty<sup>191</sup> and market confidence does not justify protection of *all* acquirers, but rather protection from histories that go beyond those disclosed by the Registry. An entirely untraceable currency might well attract increased market activity but would present unacceptable risks in terms of integrity. The

182 See *Armstrong* n 46 above at [238].

183 R. Anderson, I. Shumailov and M. Ahmed, *Making Bitcoin Legal* (Cambridge University Computer Laboratory, 2018) describe the development of a ‘taintchain’ that can accurately identify bitcoins tainted by theft.

184 R. Anderson, I. Shumailov and M. Ahmed, *Bitcoin Redux* (Cambridge University Computer Laboratory, 2018) 10.

185 A point noted by L. Lohmann, ‘Financialization, Commodification and Carbon: The Contradictions of Neoliberal Climate Policy’ (2012) 48 *Socialist Register* 85, 87.

186 To the extent that the Commission appoints the ‘central administrator’ responsible for maintaining the independent transaction log recording the issue, transfer and cancellation of allowances: see Emissions Trading Directive, Art 20.

187 See for example Low and Lin, n 3 above, 28.

188 Fox, n 73 above, paras 2.54–2.55.

189 See for example C.P. Carlarne, *Climate Change Law and Policy: EU and US Approaches* (Oxford: OUP, 2010) 172.

190 § 7(4) Treibhausgas-Emissionshandelsgesetz.

191 Cited by the German legislator in the relevant legislative comment: Bundestags-Drucksache. 15/2328, 15.

fact that EUAs embody exchange value<sup>192</sup> does not mean that their legal and material histories should be entirely disregarded or hidden.

Further, the extent to which protection of purchasers will actually serve to encourage market liquidity is more controversial than the orthodox account suggests.<sup>193</sup> Empirical analysis of the effect of transfer rules on trade is beyond the scope of this article, but, at best, the good faith protection rules are only one factor among many others that may influence market liquidity and volatility.<sup>194</sup> As several commentators note, the availability of remedies other than specific recovery of the EUAs concerned, such as the personal liability in equity based upon knowing receipt that was recognised in *Armstrong*,<sup>195</sup> may be equally disconcerting to market participants.<sup>196</sup> If the overall aim is to influence risk perception among traders, reform of property rules appears a somewhat limited and ineffective way of achieving this objective. At least part of the 2010–2011 crisis in the EU ETS can be attributed to the lack of any regulation of traders in some jurisdictions;<sup>197</sup> the Registry Regulation now provides for a harmonised approach to registration and identity verification of traders.<sup>198</sup> Moreover, it is possible for market participants to use contractual mechanisms such as warranties to achieve an acceptable balance of risk between buyer and seller.<sup>199</sup>

### Accuracy and the register

The logical conclusion of the arguments above is that no provision protecting good (or bad) faith purchasers is necessary. Rather, it is the reliability of the register that requires legal attention. As Low and Lin point out, when it comes to intangible property, an actionable interference will only take place where the law recognises some effect on the rights of the claimant.<sup>200</sup> It is therefore crucial to clarify what effect a registration that takes place as a result of fraud or error will have on the rights of persons concerned. As discussed earlier, it appears that registration is only *prima facie* evidence of entitlement. However, the Registry Regulation operates to exclude rectification of the register in most circumstances. In practice, registration has something equivalent to a positive effect. Indeed, German law, for example, states this expressly.<sup>201</sup> Unless national law provides for the execution of a new Registry transaction, registered titles

192 This is also cited by the German legislator, *ibid*.

193 See for example J.S. Rogers, 'Negotiability, Property, and Identity' (1990) 12 *Cardozo Law Review* 471, 479–484. For fuller analysis of the law and economics research on this point, see Holligan, n 122 above, part 5C(3).

194 See Fox, n 73 above, paras 2.44–2.55.

195 n 46 above.

196 See for example Zaman, n 92 above, 45; Low and Lin, n 3 above, 403.

197 For example, Frunza refers to the Danish registry, where only an email address was required to open an emissions trading account, n 39 above, 151 and, on the key role this played in perpetuating various types of fraud, 151–155.

198 See Registry Regulation, Art 18 and Annex IV.

199 On the role of contractual provision in emissions trading, see Manea, n 3 above, ch 3, esp 73–74.

200 Low and Lin, n 3 above, 390–391.

201 § 7(4) Treibhausgas-Emissionshandelsgesetz.



will be virtually infeasible. The consequences for those deprived of rights are troubling: in order to secure the registration system, off-register entitlements are destroyed, and questions of redress left to the patchwork of national laws.

An additional dimension here is the speed of electronic transfer. As Stephen Morris QC in *Armstrong* comments, 'trading in EUAs takes place very quickly and they can be sold several times in a day'.<sup>202</sup> The use of technology and fraud-detecting algorithms to authenticate transactions may accelerate the registry monitoring and verification process.<sup>203</sup> However, no system, electronic or otherwise, is totally infallible and algorithmic validation cannot guarantee legal validity.<sup>204</sup> Rather than entrust our security to technical code, it is, as has recently been argued in the context of securities transferred via blockchain, crucial to assert the primacy of human law through the application of just property rules.<sup>205</sup> There is reason to be cautious about proposals for blockchain-based decentralised electronic ledgers in emissions trading.<sup>206</sup>

A system that provided explicitly for deferred infeasibility would allow for the recognition and correction of transactional error while maintaining the ability of traders to rely on the information contained in the Registry. Registration as holder of an allowance would not provide an immediately valid title, but rather a title that might become infeasible on some later event such as a valid transfer to a third party. The conditions for transactional validity could continue to be determined at national level and might or might not include good faith on the part of the acquirer. The reliability of the register would be guaranteed, while acquirers would gain some incentive to transact responsibly.<sup>207</sup> Of course, rapidity of transfer may erode the temporal and legal gap between immediate and deferred protection here, but the transaction confirmation delay specified in Article 39(3) of the Registry Regulation provides some, limited, protection.

There are a number of different ways in which the outcome described here could be reached, but some amendment to the Registry Regulation would be required. The current rules are potentially unjust in the balance struck between the abstraction demanded by market exchange and systemic integrity. In order to create a frictionless market, competing claims are simply (with the exception of national law remedies) erased. Conflict cannot, however, be suppressed so easily; the current rules displace dispute at the expense of transparency and

202 n 46 above at [19].

203 For examples, see Dingirard et al, n 163 above, para 4.3.2.

204 On the distinction between validation through code and legal validity and the potential for continuing problems with the security of electronic systems, see K.F.K. Low and E. Mik, 'Pause the Blockchain Legal Revolution' (2020) 69 *International and Comparative Law Quarterly* 135, 140, 177-159; Low and Teo, n 144 above; and M. Funk, 'The Hack that Warmed the World' *Foreign Policy* 30 January 2015 at <http://foreignpolicy.com/2015/01/30/climate-change-hack-carbon-credit-black-dragon/>.

205 Paech, n 5 above. On the dynamic interaction between legal and technical code and the need for human accountability, see K. Yeung, 'Regulation by Blockchain: The Emerging Battle for Supremacy between the Code of Law and Code as Law' (2019) 82 *MLR* 207.

206 See for example Climate Ledger Initiative, *Navigating Blockchain and Climate Action* (2018); A. Marke (ed), *Transforming Climate Finance and Green Investment with Blockchains* (London: Academic Press, 2018).

207 This is the approach advocated, for example, by the Scottish Law Commission in their reform of Scotland's land registration system: see Scottish Law Commission, *Report on Land Registration* (Scot Law Com No 222, 2010).



transactional justice. While *ArcelorMittal* and *Holcim* imply that the Registry Regulation is unlikely to be found to breach the Charter of Fundamental Rights of the European Union, a more nuanced approach to the effect of registration would better balance the competing interests concerned.

## CONCLUSIONS: PROPERTY, MARKETS AND HISTORY

In one sense, the good faith purchase of emissions allowances is a classic property law problem, pertaining principally to the allocation of rights and duties between private persons. It is evident from the discussion above, however, that the nature of the entitlements involved and the public interest in the environmental effects of emissions trading adds a further dimension to the choice of property rules. The abstraction inherent in the construction of emissions trading markets serves to obscure the spatial and ecological relationships that underlie a carbon ‘currency’, and the adoption of property rules that erase the history of emissions allowances is likely further to exacerbate this tendency. Taking the interpenetration of public and private seriously requires greater attentiveness to the public dimensions of the property rules regulating transfer of allowances. The elision of transactional and environmental responsibility within the EU ETS makes it particularly concerning that the Registry Regulation facilitates evasion of both.

Although the commodity form, as Marx puts it, ‘bursts through all restrictions as to time, place and individuals’,<sup>208</sup> it is never fully stabilised. This is evident in the pressure placed by the historical and material (Brexit, fraud, ETS linkage) on the legal fungibility of allowances. It is necessary to question the neutrality of ‘technical’ moves and ‘technopolitics’, whereby inherently messy and political questions are regulated by means of opaque and unaccountable bureaucratic processes.<sup>209</sup> The Commission response to problems of fraud and uncertainty has been to reduce the transparency and traceability of individual allowances, in the hope that obscuring transaction history from the public and from potential purchasers will protect the stability and certainty of the market. A preferable response would be to distinguish between transactional and register error, protecting against mistakes on the register, but not defects in a transfer from the registered holder. This would operate to, in a small way, ‘resynchronise’<sup>210</sup> the emissions trading market with its juridical, political and ecological foundations.

208 K. Marx, *Capital: A Critique of Political Economy* Vol 1 (1867, Moscow: Progress Publishers, English tr., 2015) 77.

209 See Bryant, n 147 above.

210 This term is used by M. Bitter in the context of the disjuncture between economic and ecological time: ‘Contradictions of the Commodity Carbon – On the Material and Symbolic Production of a Market’ in E. Altvater and A. Brunnengräber (eds), *After Cancún* (Wiesbaden: VS Verlag für Sozialwissenschaften, 2011) 89.